STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

Scott M. Matheson, Governor
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4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

June 30, 1982

Mr. James W. Godlove
Director of Environmental Affairs
White River Shale Oil Corporation
Suite 500 Prudential Building
115 South Main Street
Salt Lake City, Utah 84111

Attention: Ralph DeLeonardis

RE: Permit Application Review
White River Shale Project
ACT/047/017
Uintah County, Utah

Dear Mr. Godlove:

An in-depth review of the permit application regarding the above-mentioned application has been conducted by this office in order to evaluate its compliance with the Rules and Regulations of the Utah Mined Land Reclamation Act of 1975, Title 40-8 Utah Code Annotated, 1953.

The enclosed review document identifies a number of informational and clarification needs requiring attention prior to the completion of the permitting process.

It is our intention to resolve as many of these concerns as possible prior to approaching the Board of Oil, Gas and Mining for concurrence in issuing a tentative approval notice.

The Division staff will be pleased to clarify any questions or concerns regarding these comments. If you need any assistance prior to WRSOC's written response please feel free to contact Tom Portle of my staff.

Sincerely,

JAMES W. SMITH
COORDINATOR OF MINED LAND
DEVELOPMENT

Enclosure

JWS/TLP/dc

WHITE RIVER SHALE PROJECT
MINING AND RECLAMATION PLAN REVIEW COMMENTS

M-3(1)(e)

It is impossible to determine the extent to which the runoff retention or holding pond will treat disturbed area drainage. How many acres of disturbed and/or undisturbed drainage will be treated? A drainage map should be included in the permit to delineate these various areas of the watershed.

Figure 1-7 shows the location only of the evaporation holding pond for treated wastewater effluent. What is this pond sized for? What is the daily flow rate entering the pond? Give approximate quantities of the various processing flow rates which will be passed into this pond.

Section 1.3.3.5 states that part of the water supply will be provided by alluvial wells. These water rights must be included in those appropriated by the State Engineer. Groundwater which is intercepted (after grouting attempts are made) and utilized on the surface must also be appropriated by the State Engineer. If grouting does not prove successful, White River Shale Oil Corporation (WRSOC) must determine whether the surface retention pond can adequately hold the resulting volume of "operational" flow. It may be necessary to propose a dewatering scheme for this pond.

M-3(1)(h)

WRSOC proposes to use berms and ditches to control runoff during construction. OGM does not concur with the statement made in Section 1.2.5 of the application that "occasional runoff from the construction sites will result in water flowing down natural drainage". Even though the proposal calls for structural controls, every effort should be made to control sedimentation at the source and prior to entering the natural drainages until the runoff retention pond is completed. WRSOC should alter the temporary erosion measures to assure this effort is achieved.

M-5

With regard to the bond proposed to cover the Phase 1 permit:

> In the MR-1 Form, the applicant states that 635 acres will be disturbed while in 2.6 the language states that the calculation is based on "a total of 2,000 acres disturbed during Phase 1." Please clarify. The posted bond would provide $1,575 per acre if 635 acres is used.
>
> The acceptance of any bond proposal is at the discretion of the Board of Oil, Gas and Mining. The Board may accept the bond previously filed with BLM if it can be justified that it assures an acceptable degree of land reclamation.

WRSOC should submit a proposed bond which includes, at a minimum, information addressing site clean-up, regrading and contouring, stabilization, labor, mobilization and demobilization, shaft closure, monitoring and an inflation factor. Upon review of this proposal, the Division will make its recommendations to the Board.

Scheduling involves nine years development and mining one year projected for dismantlement and two years for revegetation, plus three years monitoring. Bond will need to be applied for 15 years for Phase I for 635 acres.

M-6

Where were the cross sections A-A', B-B' and C-C' taken? A map should be submitted which includes where the lines were obtained.

Although the WRSP deals for the most part in conceptual designs, it is requested that an estimate of the amount and extent of underground mining which will occur during Phase I be submitted to the Division. Figure 1-9 of the MRP does not indicate if this mining layout is proposed for any estimated amount of time in particular. A plan should be submitted locating the extent per year of underground mining activity (perhaps color coded by year) for the life of Phase I. This would be utilized to enbable the Division to better understand the entries room and pillar design in relation to the surface facility construction. These surface facilities should be superimposed upon the map similar to map Fig 3.5-6 in the DDP. A 1" = 200' scale is suggested. Will mining be conducted in the vicinity of the Moon Lake power transmission line?

M-6
M-3(2)(d) Subgrade:

A clarification of where the "grubbing operations" will be subgraded is needed. Delineate on appropriate maps.

Will all regrading work be done following the termination of mining and processing activities or will some of this work be done contemporaneously during life of the operation? If the latter is the case, please provide the Division with an indication of when or where this will occur.

Please provide suitable information on the slope of the processed shale area including the slope of the terraces. Will they be level or sloped to the inside or outside?

The operator states in 2.3.1.1 that "if sufficient quantities" of material necessary to achieve final grade are not available "material shall be obtained from approved sources on or outside the property boundary limits." Has a materials balance been done with respect to this? In order to minimize surface disturbance it would be desirable to plan operations in such a way so as to eliminate the need for a borrow area. Borrow areas would themselves require reclamation and should be within the permit area so as not to extend the impact of mining.

M-10(1)

Important wildlife habitats such as riparian areas or roosting areas for raptors were not mentioned in the application. Identify any such areas which are present on the permit area. If any such area will be disturbed, describe it and discuss measures which may be utilized to reclaim these areas in order to mitigate important habitat losses.

For future land-use, the applicant mentions "oil shale mining and processing and livestock grazing." This should be changed to reflect the use after abandonment. Also, will wildlife habitat be among the future land uses? If so, the applicant should state this.

M-3(2)
M-10(2)

No reference was found in either the Mining and Reclamation Plan nor to any great extent in the DDP to any discussion or investigation into the potential for subsidence effects. Owing to the laminated, thinly bedded and variable type of overburden in addition to the relatively near presence of the Birds Nest aquifer, further attention should be given to the possiblity for subsidence, including possible monitoring and mitigation measures. A more comprehensive treatment of the subject is requested.

M-10(2)(b)
M-3(2)(c)

What and where are the "approved disposal areas" for trash, etc.?

What will be the fate of the fine shale? Will it be treated separately, reclaimed or mixed with the processed shale, etc.?

M-10(2)

Has the pillar size around gas wells been designed yet? If so, what criteria were used in development of reasonable safety factors? If not, a commitment to submitting these data to the Division prior to mining should be made. Will the #1 gas well be intercepted by mining during Phase I?

M-10(2)
M-10(7)

Where will the WRSP dispose of the ripped road pavement? A design specifically addressing volume and storage capabilities should be submitted.

How deeply will the concrete foundations be buried after having been broken up upon reclamation?

M-10(4)
M-6
M-3(1)(g)
M-3(2)(d)

Pre- and postmining contour maps and attendant cross sections are necessary to complement the regrading plan in Section 2.3. These should describe all disturbed areas including spent shale disposal locations.

A cross-sectional map should include both existing and proposed grades of the spent shale disposal area and waste rock embankments as well as all dams. The postmining topography for the entire Phase I operational area should be presented on a concise map that portrays nonimpoundment of drainage through appropriate regrading as discussed.

M-10(4)

In reference to the slopes of the waste rock embankment, the question arises about surface drainage facilities for the shale disposal area. DOGM requires assurance that there will be no impoundment of water behind the embankments either before or during operations. WRSOC should further detail the operational use of the spent shale disposal embankments and clarify the drainage control plans for these areas.

M-3(2)(c)
M-10(4)
M-10(6)

Waste rock will be crushed to what size? Have any tests been conducted on the pyritic content and susceptability for acid development? Does the use of this rock in shale embankments refer to an outer coating on the shale fines storage or spent shale disposal slopes, etc.?

M-10(6)

Will the waste rock and muck generated in shaft and decline construction be analyzed for toxicity to assure safety in surface disposal?

M-10(8)

The drainage plan map indicates that surface runoff will be conveyed over, under and through certain access and on-site roads. What event criteria will be used for culvert design?

M-10(10)

What specific designs have been developed for the permanent closure of portals, shafts and declines?

M-3(e)
M-10(11)

A detailed construction schedule is needed to aid in hydrologic and other resource protection during operation. Will the embankments be built simultaneously with the dams and the spent shale disposal area? Will the experimental spent shale vegetation area be built first? When will the runoff and leachate holding pond dams be built?

M-10(12)
M-3(2)(e)

Three different types of revegetation treatments are described: (a) general disturbed areas; (b) temporary mine access road; and, (c) processed shale area. A specific standard for revegetation success needs to be established for each type, this should be based upon the average percent cover of native vegetation in each of the above-mentioned areas.

A discussion of how the revegetation areas will be monitored for success including timing and parameters measures and how they will be compared with the established success standards should be included.

It is strongly recommended that a map outlining the areas where each treatment will be implemented could be submitted. A vegetation map of the permit area would also be helpful since revegetation success standards are set by the native vegetation types.

The processed shale pile presents a special case since the entire area will not be revegetated. A specific discussion on how success will be measured in this area should be included. The specific methods including fertilization, mulching, irrigation techniques, if necessary, and the exact seed mix to be used in each area should be submitted to the Division.

What criteria will be employed to determine if the slopes of the processed shale area will require "temporary" sealing. In 2.4.1.3, it is stated that slopes will be sealed in paragraph 1 and that slopes "may be temporarily sealed" in paragraph 2 as well as 2.4.3.3. Please clarify.

Where will the species listed in Table 2-3 (Reclamation Plan Species Mix) be used? What seeding rates and revegetation treatments will be utilized?

Table 2-1 does not agree with the text in a couple of instances. In the table it says (under general disturbed areas) that seeding will precede transplanting while the text (page 54) says the opposite. The next paragraph in Table 2-1 gives seeding rates which differ from the seeding rates given in Table 2-2. Please clarify these discrepancies.

A more detailed time table for reclamation should be submitted, breaking down the three year abandonment period into segments and describing which areas will be reclaimed and which treatments and reclamation activities will occur at what times.

In 2.4.6, WRSOC indicates that periodic maintenance inspections will be conducted on revegetated areas. Please define periodic. Relate this to cost in the updated proposed bond.

M-10(13)

WRSOC proposes to leave certain impoundments as evaporation ponds with dams enclosed and placarded except for the runoff retention dam which will be fenced and placarded. The State of Utah requires the applicant to leave all impoundments in a self-draining mechanically stable manner at the time of abandonment. By retaining runoff for evaporation this requirement will not be met for either dams or impoundments as described in M-10(3).

WRSOC must appeal to the Board of Oil, Gas and Mining for a variance to this regulation if it is desired to leave dams and impoundments on site. If the Board agrees to a variance then a post-abandoment maintenance agreement must be worked out with the land owner(s) to assure the health and welfare of people and animals is not threatened.

M-10(14)

Soil maps submitted June 8, 1982 adequately address the depth of removal and volume of removal needs. How will soils in "peripheral areas" such as the mine access road, the water well service road and the bachelor camp be handled with regard to removal, protection and revegetation?

Utilizing the 22 million cubic feet figure (505 acre feet) cited in section 1.3.5.1 and the 635 acre disturbance figure provided in the MR-1 Form, a uniform depth of topsoil replacement of approximately 9.5 inches is possible. However, using the more defined figures provided in the June 8, 1982 letter, 60,000 cubic yards (37.2 acre feet) will be available. This would provide 0.72 inches of soil available for distribution at a uniform depth. Does WRSOC intend to exclude certain areas from reclamation due to steepness or some other adverse condition? Please explain? Are these figures accurate? How might this discrepancy be explained? What is the expected depth of topsoil replacement? Please relate this depth as well as anticipated volume to the specific areas to be reclaimed. A map delineating these relationships would be useful.

Will any soil be obtained from the future spent shale disposal area (most of this area is indicated to be beyond the bonds of the soil survey according to the map submitted on June 8, 1982)? In the May 24, 1982 letter on this subject, WRSOC states that soil will be removed from "all areas to be disturbed as indicated on Figure 1-3. Please clarify.

What is the anticipated depth replacement and soil volume necessary for reclamation of terraces associated with processed shale area?

Is adequate soil available for reclamation? Please provide updated calculations to verify from where deficit soil material, if any, be obtained?

With regard to topsoil stockpile protection:

A. Please indicate whether berms or ditches will be used to protect topsoil from runoff erosion; both are mentioned as possibilities.

B. In the Phase I permit application under 1.3.5.3, WRSOC states that a soil storage stockpile will be treated with a biodegradeable soil stabilizer if they are to be in place for an "extended" period of time. However, in the May 24, 1982 letter, this statement is qualified: "if severe erosion conditions are evident or anticipated." Please explain this difference in language and shed light on the rationale behind it.

C. What measures will be implemented if topsoil stockpile seeding is not successful to acheive protection goals?

It is stated in 2.4.3.3 wastewater and sewage sludge may be employed to aid revegetation efforts. How will the rates of applications of these organic amendments be determined?